Remarks/Arguments

Each of the cited references has been reviewed and the rejections made to the claims have been considered.

Claims

Claims 1-18 were pending in the application. Claims 1-18 where rejected. Claims 5-9 and 17-18 are amended, claims 10-16 are canceled. Claims 1-9 and 17-18 remain. The rejection of the remaining claims is traversed.

Rejections under 35 U.S.C. 102

The Examiner has rejected claims 1, 4-5, 7-9, 11-12, and 14-15 under 35 U.S.C. 102(e) as being anticipated by Carhart (U.S. 6,622,304).

Carhart discloses a system for permitting interface between a centralized in-home computing apparatus and a plurality of remotely situated in-home communications stations. A two-way signal path is created between the centralized computing apparatus and the communications stations by the use of a frequency sensitive splitter/reflector positioned at the cable TV drop point entering the home. The splitter/reflector blocks signals from the communications stations and computing apparatus from moving into the CATV system while allowing signals from the CATV system to move through the splitter/reflector to the communications stations and computing apparatus.

It is important to note that the reflector/splitter in Carhart is at least a 3-port device or 4-port device, as shown in Fig. 3 and Fig. 4. The communications stations connect to one output port and the centralized computing apparatus connects to a separate output port. A filter (33) internal to the splitter/reflector passes in-home signals from the communications stations connected at one port to the centralized computing apparatus connected at another port. In Carhart's disclosure, each output port requires a tap or splitter (32) and a filter (33). Fig. 4 shows a 4-port device with 3 output ports that requires a 3-way coupler to pass the signal between outputs (35). The complexity of Carhart's splitter/reflector grows significantly as output ports are added.

The device in Carhart, although called "reflector", functions as a signal circulator that passes a signal from one output port through a filter (33) to another output port (col. 10, lines 12-18). In Carhart, the signal passing circuit, a high-pass or band-pass filter (33) associated with each output, is connected between splitters (32) **passing signal between two output ports.** The coupled signal passes through the filter. In Carhart, all devices that communicate with the centralized computer or each other must be connected to the reflector/splitter at the point of entry. The signal transmitted from a communication station or centralized computer **does not pass back down the same wire**, but only passes to another output port. Therefore, other devices in the same wiring branch as the transmitting device will not receive the transmitted signal. In Carhart's approach, signals do not reach all devices in the building wiring.

The network interface device of applicant's invention is a two-port device. The first port connects to the point of entry. The second port is connected to the terminal device side of the building wiring. The signal reflecting circuit is connected between the point of entry (first port) and terminal device side (second port). The terminal device side of the building is accessed through a splitter (230). **The two-port network interface reflects signals transmitted to the second port back out the same port.** The reflection is achieved by an impedance mismatch in the frequency band that is reflected. (application page 8 lines 23-31; and pages 9-10) The signals are not passed to another output port through a filter connecting between output ports, as in Carhart. This distinction is important in differentiating the approach in Carhart with the approach and claims of the applicants. Applicant's signal reflecting circuit is installed upstream from a main point of entry splitter, Carhart's signal passing is done inside his splitter. In Carhart, the centralized computing apparatus is connected to one output port; communications stations are connected to a different output port of the splitter/reflector. In Carhart, the transmitted signals are not reflected back down the same wire.

In applicants' invention, any node connected to the building wiring can communicate with any other node. All nodes transmit signals toward the network interface device at the point of entry, the network interface device reflects those signals back to all wiring branches of the building wiring including the wire originating the transmission. Any signal transmitted up any wiring branch is reflected back down all wiring branches. Resulting from the true reflecting nature of applicant's device, any node connected in the building wiring, even through a second level splitter, for example splitter 231 in Fig.

2, can transmit signals to and receive from any other node in any branch of the wiring, including nodes in the same branch as the transmitting node. Because applicant's reflecting network interface device is a two-port device that can be inserted in-line ahead of the point of entry splitter, no splitters in the wiring need to be replaced. In Carhart's approach, the conventional point of entry splitter must be replaced and have sufficient ports to allow connection of all the nodes.

As shown in Fig. 2 of the present application, the splitter 230 can be an N-way splitter without added complexity of the network interface 210. The complexity of Carhart's splitter/reflector grows significantly as the number of output ports increases, as shown in his Fig. 3 and 4.

Claim 1 claims a 2-port network interface device installed between the point of entry and the remaining building wiring with a signal reflector between the two ports. The disclosure of Carhart does not disclose a 2-port network interface with a signal reflecting circuit connected between the port connected to the point of entry side of building wiring and the port connected to the terminal device side of the building wiring. Carhart discloses at least a 3-port device with a signal passing circuit connected between two output ports.

Applicant believes that Claim 1 is patentable over Carhart and allowance is respectfully requested.

Regarding claim 5, amended to replace "couples" with reflects, the splitter reflector 25 of Carhart does not reflect network signals originating in the building wiring back into the building wiring, as described above, but instead Carhart passes a signal from one port to another port and does not couple the signal back into the wiring branch used to transmit the signal to the splitter/reflector. The plurality of branches of the building wiring in Carhart do not experience signal coupling, as in applicant's invention and claim. Applicant believes that Claim 5 is patentable over Carhart and allowance is respectfully requested.

Claim 11 is canceled.

Regarding claim 4, in light of the arguments of claim 1 upon which this claim depends, claim 4 should be allowable. Further, a limiting element "means for reflecting signal energy connected to the first

filter" is described in the specification at page 8 line 25 and in Fig. 3 as an impedance mismatch 310. This different from Carhart's splitter/reflector, which employs coupling of signal between output ports, not signal reflecting using an impedance mismatch. Applicant believes that Claim 4 is patentable over Carhart and allowance is respectfully requested

Regarding claim 7, in light of the arguments of claim 5 upon which this claims depend, claim 7 should be allowable.

Claim 14 is canceled.

Regarding claim 8 and 9, in light of the arguments of claim 5 upon which these claims depend, claim 8 and 9 should be allowable. Additionally, claim 8 contains the limitation that "the network interface device is located at the point of entry of the building wiring". This limitation distinguishes this claim from the disclosure in Carhart because Carhart does not have the frequency dependent signal coupling element located at the point of entry, but instead locates his signal passing circuit below the point of entry and between splitter output ports. As discussed above, the location of the reflection is critical to achieving the objective of transmitting modulated signals using building wiring; without the reflection occurring at the point of entry, not all wiring branches receive the signals transmitted from within the building wiring. The reflection at the point of entry can be generated by applicant's device physically located external to the point of entry. (Application page 7 line 27 to page 8 line 4) Carhart requires a new splitter device, applicant's approach does not. Claim 9 has been amended to replace "couples" with reflects for consistency with the amendment to claim 5. Applicant believes that claims 8 and 9 are patentable over Carhart and allowance is respectfully requested.

Claim 12 has been canceled.

Claim 15 has been canceled.

Rejections under 35 U.S.C. 103

Regarding claim 2, rejected as being unpatentable over Carhart in view of Boesch (5,969,582), in light of the arguments of claim 1 upon which this claim depends, claim 2 should be allowable. Further, it would not be obvious to combine the parallel resonant circuit of Boesch with the signal reflecting circuit of Carhart. As discussed above, the signal "reflecting" aspect of Carhart is actually a signal passing element, where the signal passes from one port to another through a frequency selective filter. The reflecting element of applicant's invention is an element that reflects the signal back to the path through which it was transmitted. Boesch discloses a parallel resonant circuit to reflect energy for the purpose of impedance matching and blocking the transmission of power in a signal path. The teaching in Boesch is not to reflect energy to couple a signal through a network of wiring, as in the applicant's invention.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP section 2143.

In the present case, there is no suggestion or motivation in the references or in the knowledge generally to modify the references or combine the teachings. Boesch does not suggest or provide motivation to apply the parallel resonant circuits to reflect signals in coaxial cable building wiring to enable communication over the wiring.

Regarding claim 3, rejected as being unpatentable over Carhart in view of O'shea (4,933,745), in light of the arguments of claim 1 upon which this claim depends, claim 3 should be allowable. Further, it would not be obvious to combine the series resonant circuit of O'Shea with the signal interface system of Carhart. O'Shea teaches using a series resonant circuit for the purpose of creating an RF switch,

where diode biasing controls the creation of an open circuit or a short. O'Shea does not suggest or provide motivation to apply the parallel resonant circuits to reflect signals in coaxial cable building wiring to enable communication over the wiring.

Regarding claims 6, rejected as being unpatentable over Carhart in view of Langlais (6,091,932), in light of the arguments of claim 5 upon which this claim depends, claims 6 should be allowable. Further, it would not be obvious to combine the OFDM transmission system of Langlais with the signal interface system of Carhart. Langlais teaches a two-way point to multipoint transmission system using OFDM to establish communication between one upstream unit and a plurality of downstream units. Langlais does not teach communication between the down stream units. The communication path formed by the interface system of Carhart does not result in frequency selective fading due to multipath. Carhart teaches coupling the signal from one device through the splitter to another device. Carhart uses low loss coupling that results in a high signal level coupled to other ports. No electrical signal reflections are created where a multipath signal with delay and amplitude difference relative to the main signal is created. The network formed by the applicant's invention produces a true signal reflection that passes back down the same cable where the signal originated. This creates a multipath condition and frequency. See application page 12 lines 24 – 31. There is no motivation in Carhart or Langlais to apply the teaching of Langlais because there is no problem identified in Carhart of frequency selective fading.

Claims 13 and 16 have been canceled.

Claim 10 has been canceled.

Claim 17 has been amended to depend on claim 5. In light of the arguments to claim 5 above, upon which this claim depends, claim 17 should be allowable.

Claim 18 has been amended to depend on claim 6. In light of the arguments to claim 5 and 6 above, upon which this claim depends, claim 18 should be allowable.

Conclusion

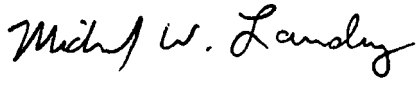
In view of the foregoing, claims 1-4 are in condition for allowance, and claims 5-9 and claims 17-18 as amended are in condition for allowance and such action is respectfully requested.

In the event that the arguments above are not persuasive, applicant requests an interview with the examiner. Attached is form PTOL-413A – Applicant initiated interview request.

If it is felt that direct communication would serve to advance prosecution of this case, the examiner is invited to call the attorney at the below listed telephone number.

Date: 10/12/2005

Respectfully submitted,



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